

**IN THE CLAIMS**

This is a complete and current listing of the claims, marked with status identifiers in parentheses. The following listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently Amended) A method for acquiring and processing signals from industrial processes ~~which are composed of including~~ at least one partial process ~~(T1...T2)~~, the industrial process being at least one of controlled and/or regulated by at least one automation device ~~which is equipped with at least one or more bus systems, characterized in that~~ that the method comprising:

using a) ~~at least one measuring bus system (B1...B2) is used which is not identical to the at east one bus system or the bus systems of the automation device,~~

acquiring b) ~~measuring signals are acquired using at least one measuring head (M1...M6), the measuring head (M1...M6) acquiring measuring signals at the an input end from signal generators (S1...S6) of the industrial process which are at least one of present and/or which are to be additionally provided and passing on these measuring signals at the an output end to the measuring bus system (B1...B2) in a predefined form,~~

further processing e) ~~the measuring signals are further processed by at least one data concentrator (D1...D2), and in that~~

automatically detecting at least one of d) ~~measuring heads (M1...M7) and/or data concentrators (D1...D2) are automatically detected.~~

2. (Currently Amended) The method as claimed in claim 1, ~~characterized in that~~ wherein at least one measuring head (M7)

receives, at the input end, measuring signals from any desired bus system ~~(P2)~~.

3. (Currently Amended) The method as claimed in ~~one of the preceding claims, characterized in that~~ claim 1, wherein at least one measuring head passes on measuring signals directly to a data concentrator ~~(D1...D2)~~ at the output end.

4. (Currently Amended) The method as claimed in ~~one of the preceding claims, characterized in that~~ claim 1, wherein the setup of the communication between data concentrators ~~(D1...D2)~~ and measuring heads ~~(M1...M7)~~ is carried out automatically using at least one communications unit.

5. (Currently Amended) The method as claimed in ~~one of the preceding claims, characterized in that~~ claim 1, wherein all the time signals are generated by providing measuring signals with a time stamp.

6. (Currently Amended) The method as claimed in ~~one of the preceding claims, characterized in that~~ claim 1, wherein at least one measuring head ~~(M1...M7)~~ receives a standardized time signal.

7. (Currently Amended) The method as claimed in claim 6, ~~characterized in that~~ wherein the standardized time signal is acquired from a Global Positioning System ~~(GPS)~~.

8. (Currently Amended) The method as claimed in ~~one of the preceding claims, characterized in that~~ claim 7, wherein at least one of ~~the~~ time signals and/or measuring signals which originate from at least one data concentrator ~~(D1...D2)~~ are processed using at least one programmable evaluation unit ~~(E1...E2)~~, ~~it being possible for the programmable evaluation unit (E1...E2) to being~~ located at any desired spatial distance from the partial processes ~~(T1...T2)~~.

9. (Currently Amended) The method as claimed in ~~one of the preceding claims, characterized in that~~ claim 8, wherein at least one display unit ~~(A1...A2)~~ is used to display data which is generated from at least one of the measuring signals and/or time signals, ~~it being possible for the display unit (A1...A2) to being~~ located at any desired spatial distance from the partial processes ~~(T1...T2)~~.

10. (Currently Amended) A device for acquiring and processing signals from industrial processes ~~which are composed of including~~ at least one partial process ~~(T1...T2)~~, the industrial process being at least one of controlled and/or regulated by at least one automation device ~~which is equipped with at least one or more bus systems, characterized in that~~ that the device comprising:

a) ~~at least one measuring bus system, (B1...B2) is provided which is not identical to the at least one bus system or the bus systems of the automation device,~~;

b) ~~at least one measuring head (M1...M6) for acquiring measuring signals is provided and is, connected at the an input end to signal generators (S1...S6) of the industrial process which are at least one of present and/or which are to be additionally provided, and at the an output end, passes on signals in a predefined form to the measuring bus system (B1...B2),~~;

at least c) ~~one or more data concentrators (D1...D2) are, connected to the measuring bus system (B1...B2),~~ and in that

d) ~~means are provided for automatically detecting at least one of measuring heads (M1...M7) and/or data concentrators (D1...D2).~~

11. (Currently Amended) The device as claimed in claim 10, ~~characterized in that~~ wherein at least one measuring head ~~(M7)~~, ~~which is connected at the input end to any desired bus system (P2), is provided.~~

12. (Currently Amended) The device as claimed in claim 10~~-or 11~~, ~~characterized in that~~wherein at least one measuring head, ~~which is directly connected at the output end to a data concentrator (D1...D2)~~, is provided.

13. (Currently Amended) The device as claimed in ~~one of claims 10 to 12~~, ~~characterized in that~~wherein a communications unit, which permits the automatic setup of the communication between data concentrators ~~(D1...D2)~~ and measuring heads ~~(M1...M7)~~, is provided.

14. (Currently Amended) The device as claimed in ~~one of claims 10 to 13~~, ~~characterized in that~~wherein at least one measuring head ~~(M1...M7)~~, ~~which is connected to a signal generator which supplies a standardized time signal~~, is provided.

15. (Currently Amended) The device as claimed in claim 14, ~~characterized in that~~wherein at least one of the measuring heads ~~described in the characterizing part of claim 16~~ is mounted on the upper termination of a device within which, or by ~~means of which~~, the industrial process is carried out.

16. (Currently Amended) The device as claimed in ~~one of claims 10 to 15~~, ~~characterized in that~~further comprising:  
\_\_\_\_-at least one programmable evaluation unit ~~(E1...E2)~~ ~~is provided, it being possible for the programmable evaluation unit (E1...E2) to being~~ located at any desired spatial distance from the partial processes ~~(T1...T2)~~.

17. (Currently Amended) The device as claimed in ~~one of claims 10 to 16~~, ~~characterized in that~~further comprising:  
\_\_\_\_-at least one display unit ~~(A1...A2)~~ ~~is provided for displaying data which is generated from at least one of the measuring signals and/or time signals, it being possible for~~

the display unit ~~(A1...A2)~~ to being located at any desired spatial distance from the partial processes ~~(T1...T2)~~.

18. (Currently Amended) The device as claimed in ~~one of~~ claims 10 ~~to 17~~, ~~characterized in that~~ wherein the data concentrators ~~(D1...D2)~~ are conditioned so as to be ~~capable of being expanded~~ expandable in such a way that the at least one of the respectively required number of measuring bus systems ~~(B1...B2)~~ and ~~/or~~ measuring heads ~~(M1...M7)~~ can be ~~are~~ connected connectable to them.

19. (New) The method as claimed in claim 6, wherein at least one of the time signals and measuring signals which originate from at least one data concentrator are processed using at least one programmable evaluation unit, the programmable evaluation unit being located at any desired spatial distance from the partial processes.

20. (New) The method as claimed in claim 1, wherein the measuring signals which originate from at least one data concentrator are processed using at least one programmable evaluation unit, the programmable evaluation unit being located at any desired spatial distance from the partial processes.

21. (New) The method as claimed in claim 7, wherein at least one display unit is used to display data which is generated from at least one of the measuring signals and time signals, the display unit being located at any desired spatial distance from the partial processes.

22. (New) The method as claimed in claim 6, wherein at least one display unit is used to display data which is generated from at least one of the measuring signals and time signals, the display unit being located at any desired spatial distance from the partial processes.

23. (New) The method as claimed in claim 1, wherein at least one display unit is used to display data which is generated from the measuring signals, the display unit being located at any desired spatial distance from the partial processes.

24. (New) The device as claimed in claim 11, wherein at least one measuring head, directly connected at the output end to a data concentrator, is provided.

25. (New) The device as claimed in claim 10, further comprising:

at least one display unit for displaying data generated from the measuring signals, the display unit being located at any desired spatial distance from the partial processes.

26. (New) A device for acquiring and processing signals from industrial processes including at least one partial process, the industrial process being at least one of controlled and regulated by at least one automation device equipped with at least one bus system, that the device comprising:

at least one measuring bus system, which is not identical to the at least one bus system of the automation device;

means for acquiring measuring signals, connected at an input end to signal generators of the industrial process, and at an output end, for passing on signals in a predefined form to the measuring bus system;

at least one data concentrator, connected to the measuring bus system; and

means for automatically detecting at least one of measuring heads and data concentrators.

27. (New) The device as claimed in claim 26, wherein the means for acquiring includes at least one measuring head, connected at the input end to any desired bus system.

28. (New) The device as claimed in claim 26, wherein the means for acquiring includes at least one measuring head, directly connected at the output end to a data concentrator.

29. (New) The device as claimed in claim 26, further comprising:

means for permitting automatic setup of the communication between data concentrators and measuring heads.

30. (New) The device as claimed in claim 26, wherein the means for acquiring includes at least one measuring head, connected to a signal generator which supplies a standardized time signal.